

CLAIMS

What is claimed is:

- 1 1. A system for passing a cell stream at a particular transmission rate from a
2 first location to a second location, the system comprising:
 - 3 a first unit at the first location coupled to one end of each of a plurality of
4 low capacity data links for receiving the cell stream and inverse multiplexing the
5 cell stream over at least two trained data links selected from the plurality of low
6 capacity data links that are set to active status;
 - 7 a second unit at the second location coupled to the other end of each of
8 the plurality of low capacity data links for receiving and multiplexing the inverse
9 multiplexed cell stream from each of the active trained data links to produce the
10 cell stream; and
 - 11 at least one data link selected from the plurality of low capacity data links
12 that is trained and set to idle status, wherein the first unit and the second unit
13 switch to use the trained idle data link to replace any one of the active trained
14 data links that has failed and wherein the status of the idle data link is changed
15 to active, thereby avoiding system down time due to line failure.
- 1 2. The system of claim 1, wherein the trained data links operate at an
2 optimal transmission rate.
- 1 3. The system of claim 1, wherein the sum of the transmission rates of each
2 of the active trained data links is at least equal to the transmission rate of
3 the cell stream.
- 1 4. The system of claim 1, wherein the failed active data link is repaired and
2 retrained at an optimal transmission rate and set to idle status.
- 1 5. A system for passing a cell stream at a particular transmission rate from a

2 first location to a second location, the system comprising:
3 a first unit at the first location coupled to one end of each of a plurality of
4 links for receiving the cell stream and inverse multiplexing the cell stream over
5 the links that are trained at a optimal rate and set to active status;
6 a second unit at the second location coupled to the other end of each of
7 the links for receiving and multiplexing the inverse multiplexed cell stream from
8 each of the active links to produce the cell stream; and
9 at least one link trained and set to idle status, wherein the first unit and
10 the second unit switch to use the idle link to replace any one of the active links
11 that has failed and wherein the status of the idle link is changed to active,
12 thereby avoiding system down time due to line failure.

1 6. The system of claim 5, wherein the failed active link is retrained at the
2 optimal rate and the status is set to idle.
1 7. A method for passing a cell stream from a first location to a second
2 location to avoid delays due to data link failure, the method comprising:
3 selecting at least two data links from a plurality of data links;
4 training the data links at an optimal rate;
5 setting the status of the data links to active;
6 selecting at least one data link from the plurality of data links;
7 training the at least one data link at the optimal rate;
8 setting the status of the at least one data link to idle; and
9 switching to use the trained idle data link when one of the active trained
10 data links fails.